

CLAIMS

1. A cell population with identification codes, which is a population of cells that can be distinguished from one another based on a difference in luminescent signals emitted by luminescent substances, wherein the difference in the luminescent signals is caused by either or both:

- (a) 2 or more different luminescent properties; and
- (b) 2 or more different luminescent sites.

2. The cell population with identification codes of claim 1, wherein the luminescent substances of a part or all of the cells are fluorescent proteins.

3. The cell population with identification codes of claim 1 or 2, wherein a part or all of the cells express a fusion protein of a fluorescent protein and a localization signal peptide.

4. The cell population with identification codes of claim 1, wherein each cell has a different property.

5. The cell population with identification codes of claim 4, wherein the different property is expression of a different target protein.

6. The cell population with identification codes of claim 5, wherein the cell is a eukaryotic cell.

7. The cell population with identification codes of claim 6, wherein the eukaryotic cell is a mammalian cell.

8. The cell population with identification codes of any one of claims 4 to 7, which is arranged and immobilized in a minute area on a carrier.

5 9. A screening method for a cell property, which comprises contacting a probe with each cell of the cell population of any one of claims 4 to 8, and identifying the property of the cell binding to the probe with the use of the luminescent signal of the cell as an indicator.

10 10. The screening method of claim 9, wherein the probe is a fusion protein of a probe protein and a fluorescent protein.

11. The screening method of claim 10, wherein the fluorescent protein has a luminescent property different from the luminescent properties that a cell population with identification codes has.
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12. The screening method of claim 10 or 11, wherein the fusion protein probe is an in vitro transcription and translation product of a fusion gene of a probe protein gene and a fluorescent protein gene.